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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,781	01/03/2001	Hiroshi Sumida	MI 003-US/OH	1396

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EXAMINER

RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/752,781

Applicant(s)

SUMIDA ET AL.

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3,4,11 and 12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 3,4,11 and 12 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Response to Amendment***

Claims 3-4 and 11-12 are pending in the application. The applicant has canceled claims 7-10. Claims 11-12 have been added in the amendment of 9/2/2003.

### ***Specification***

The amendment filed 9/2/2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. Claims 3, 4, 11, and 12 are objected to because these claims include new matter. The added material that is not supported by the original disclosure is as follows: The specification does not provide support for the amendment that described the manganese dioxide as B-manganese dioxide or  $\gamma$ -B- manganese dioxide. Further, the use of the language "firing" is not supported in the specification. The specification states that the material is heat-treated. Changing the language of the claim is inconsistent with the specification and is considered new matter.

The points presented in table 1 support the range of sodium content from 0.1 to 0.2, in newly added claim 11.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claim 3 stands rejected under 35 U.S.C. 102(e) as being anticipated by Nagayama et al.

(WO00/06496.) Claims 7 and 9 have been canceled.

The instant claims are to a process for producing manganese dioxide having a sodium content of 0.05 to 0.2% by weight. The process consists essentially of the steps of neutralizing electrolytic manganese dioxide with an aqueous solution of sodium hydroxide such that the solution contains 2.0-5.0 g of NaOH per kg of manganese dioxide and heating the material to form a manganese dioxide having a sodium content of 0.05 to 0.2%.

Nagayama et al. (WO00/06496) teaches a process where 10 kilograms of electrolytic manganese dioxide are neutralized with an aqueous solution of 35 grams of sodium hydroxide in water. The product is heated at 50 °C for 30 minutes. The weight ratio therefore contains 3.5 grams of NaOH per kg of manganese dioxide, which is in the range of 2.0-5.0 g of NaOH per kg

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of manganese dioxide (see examples 1, lines 10-15, and examples 6-7.) The resulting material contains sodium in an amount of 0.05 to 0.2 wt. % (see Table 1.) Thus, the claim is anticipated.

Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Nagayama et al. (WO00/06496.)

Nagayama et al. (WO00/06496) teaches a process where 10 kilograms of electrolytic manganese dioxide are neutralized with an aqueous solution of 35 grams of sodium hydroxide in water. The product is heated at 50 °C for 30 minutes. The weight ratio therefore contains 3.5 grams of NaOH per kg of manganese dioxide, which is in the range of 2.0-5.0 g of NaOH per kg of manganese dioxide (see examples 1, lines 10-15, and examples 6-7.) The resulting material contains sodium in an amount of 0.1 to 0.2 wt. % (see Table 1.)

These claims are product-by-process claims. MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." Thus, the claim is anticipated.

Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Capparella et al. (US 5,698,176)

Capparella et al. (US 5,698,176) teaches a manganese compound with a sodium content of 0.05%, 0.09%, and 0.106% (as shown in example 1 and comparative example A and Table 1.) The starting material is electrolytic manganese dioxide. The materials are used as electrode materials in lithium cells (examples.) Lithium primary cells are described in col. 1.

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These claims are product-by-process claims. MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." Thus, the claim is anticipated.

The rejection of claims 7 and 9 under 35 U.S.C. 102(b) as being anticipated by Capparella et al. (US 5,698,176) has been overcome by the applicant's amendment, as claims 7 and 9 have been canceled.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (WO00/06496) in view of EP 373,791. Claims 8 and 10 have been canceled.

Nagayama et al. (WO00/06496) teaches a process where 10 kilograms of electrolytic manganese dioxide are neutralized with an aqueous solution of 35 grams of sodium hydroxide in water. The product is heated at 50 °C for 30 minutes. The weight ratio therefore contains 3.5 grams of NaOH per kg of manganese dioxide, which is in the range of 2.0-5.0 g of NaOH per kg

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of manganese dioxide (see examples 1, 6 and 7. The resulting material contains sodium in an amount of 0.05 to 0.2 wt. % (see Table 1.)

Nagayama et al. does not teach the manganese dioxide to have a phosphorous content of 0.05 to 2.0% by weight. EP 373,791 teaches a lithium primary cell having a phosphorous content of 0.05 to 2.0% by weight based on manganese dioxide (see claims 1-3.) It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare a manganese dioxide material used in a battery or cell with a phosphorous content of 0.05 to 2.0% as taught by EP 373,791 in order to achieve a high discharge voltage and long discharge time (see EP 373,791 page 2, lines 30-41.) The prior art teaches that discharge characteristics in a lithium primary cell are degraded if the phosphorous content is higher than 2.0%.

Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (WO00/06496) in view of EP 373,791.

Nagayama et al. (WO00/06496) teaches a process where 10 kilograms of electrolytic manganese dioxide are neutralized with an aqueous solution of 35 grams of sodium hydroxide in water. The product is heated at 50 °C for 30 minutes. The weight ratio therefore contains 3.5 grams of NaOH per kg of manganese dioxide, which is in the range of 2.0-5.0 g of NaOH per kg of manganese dioxide (see examples 1, 6 and 7. The resulting material contains sodium in an amount of 0.1 to 0.2 wt. % (see Table 1.) These claims are product-by-process claims. MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the

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same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”

Nagayama et al. does not teach the manganese dioxide to have a phosphorous content of 0.05 to 2.0% by weight. EP 373,791 teaches a lithium primary cell having a phosphorous content of 0.05 to 2.0% by weight based on manganese dioxide (see claims 1-3.) It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare a manganese dioxide material used in a battery or cell with a phosphorous content of 0.05 to 2.0% as taught by EP 373,791 in order to achieve a high discharge voltage and long discharge time (see EP 373,791 page 2, lines 30-41.) The prior art teaches that discharge characteristics in a lithium primary cell are degraded if the phosphorous content is higher than 2.0%.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Capparella et al. (US 5,698,176) in view of EP 373,791.

Capparella et al. (US 5,698,176) teaches a manganese compound with a sodium content of 0.05%, 0.09%, and 0.106% (as shown in example 1 and comparative example A and Table 1.) The starting material is electrolytic manganese dioxide. Lithium electrode materials and primary cells are described in the examples and in col. 1. Capparella et al. (US 5,698,176) does not teach the manganese dioxide to have a phosphorous content of 0.05 to 2.0% by weight. EP 373,791 teaches a lithium primary cell having a phosphorous content of 0.05 to 2.0% by weight based on manganese dioxide (see claims 1-3.) It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare a manganese dioxide material to have a phosphorous content of 0.05 to 2.0% as taught by EP 373,791 in order to achieve a high discharge voltage and long discharge time (see EP 373,791 page 2, lines 30-41.) The prior art teaches that discharge



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characteristics in a lithium primary cell are degraded if the phosphorous content is higher than 2.0%. Capparella et al. (US 5,698,176) teaches that it is desirable to have a manganese dioxide material with a lower sodium content in electrochemical cells as the storage life and load voltage are increased. One of ordinary skill would understand from the applied teachings to prepare manganese dioxide having a sodium content of 0.05 to 0.2% and a phosphorous content of 0.05 to 2.0% (by weight.) It is further noted that the processes of EP 373,791, examples 1-4 and 6-7, would not add sodium to the material.

The rejection of claims 8 and 10 under 35 U.S.C. 103(a) as being unpatentable over Capparella et al. (US 5,698,176) as applied above, and further in view of EP 373,791 has been overcome by the applicant's amendment, as claims 8 and 10 have been canceled.

### ***Response to Arguments***

Applicant's arguments filed 9/2/2003 have been fully considered but they are not persuasive. The applicant argues that the amendment changing the claim language from "heating" to "firing" defines the claimed process to be different than that of the applied prior art. The new matter rejection presented above is noted. The change in wording does not change the disclosure of the specification or further define the claim. The word "firing" is not defined in the specification to have a specific temperature for heating that material. Thus, the teachings of the art read upon the instant claims as written. It is further noted that firing the electrode material is noted in Nagayama in example 1 and claim 1. Capparella et al. teaches firing the material in claims 1-4.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky

Primary Patent Examiner

Art Unit 1745

*Mark Ruthkosky*  
4/22/04